

**Amendments to/Listing of the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

**Listing of Claims:**

1. **(Currently Amended)** A packaging material used for wrapping foodstuffs and for inhibiting the growth of micro-organisms in foodstuffs, said packaging material having a metal-ion sequestering agent capable of removing designated metals ions from the surfaces of said foodstuffs and from liquid extrudates of foodstuffs, wherein said sequestering agent comprises derivatized nanoparticles comprising inorganic nanoparticles having an attached metal-ion sequestrant, wherein said inorganic nanoparticles have an average particle size of less than 200 nm and the derivatized nanoparticles have a stability constant greater than  $10^{10}$  with iron (III), and wherein the metal-ion sequestrant is attached to the nanoparticle, by reacting the nanoparticle with a metal alkoxide intermediate of the sequestrant having the general formula:

$M(OR)_{4-x}R'_x$ ,

wherein M is silicon, titanium, aluminum, tin, or germanium;  
x is an integer from 1 to 3;  
R is an organic group; and  
R' is an organic group containing an alpha amino carboxylate, a hydroxamate, or a catechol.

2. **(Currently Amended)** A packaging material according to claim 1 wherein said sequestering agent is immobilized on a the support structure and has a stability constant greater than  $10^{10}$  with iron (III).

3. **(Original)** A packaging material according to claim 1 wherein said packaging material is made of glass, metal, plastic or paper.

4. **(Original)** A packaging material according to claim 1 wherein said packaging material comprises a plurality of layers having an outer layer having sequestering agent.

5. **(Original)** A packaging material according to claim 1 wherein said packaging material comprises a plurality of layers comprising an outer barrier layer for contact with said foodstuff and an inner layer having said sequestering agent, said inner layer having a first side adjacent said barrier layer, said barrier layer allowing liquid to pass through to said inner layer.

6. **(Original)** A packaging material according to claim 5 wherein a second outer layer is provided on a second side of said inner layer.

7. **(Original)** A packaging material according to claim 6 wherein said second outer layer is a second barrier layer that also allows liquid to pass through to said inner layer.

8. **(Currently Amended)** A packaging material ~~An article~~ according to claim 1 wherein said sequestering agent is immobilized on the support structure and has a high-affinity for biologically important metal-ions ~~such as~~ Mn, Zn, Cu and Fe.

9. **(Currently Amended)** A packaging material according to claim 1 wherein said sequestering agent is immobilized on the support structure and has a high-selectivity for biologically important metal-ions ~~such as~~ Mn, Zn, Cu and Fe.

10. **(Original)** A packaging material according to claim 9 wherein said sequestering agent is immobilized on the support structure and has a stability constant greater than  $10^{20}$  with iron (III).

11. **(Original)** A packaging material according to claim 9 wherein said sequestering agent is immobilized on the support structure and has a stability constant greater than  $10^{30}$  with iron (III).

12. **(Canceled)**

13. **(Original)** A packaging material according to claim 9 wherein said sequestering agent comprises derivatized nanoparticles comprising inorganic nanoparticles having an attached metal-ion sequestrant, wherein said inorganic nanoparticles have an average particle size of less than 200 nm and the derivatized nanoparticles have a stability constant greater than  $10^{20}$  with iron (III).

14. **(Original)** A packaging material according to claim 1 wherein said support structure further comprises a polymeric layer containing said metal-ion sequestering agent.

15. **(Currently Amended)** A packaging material according to claim 14 wherein the polymeric layer polymer is permeable to water.

16. **(Currently Amended)** A packaging material according to claim 14 wherein the polymeric layer polymer has a water permeability of greater than  $1000 \text{ [(cm}^3\text{cm)}/(\text{cm}^2\text{sec/Pa})] \times 10^{13}$ .

17. **(Currently Amended)** A packaging material according to claim 14 wherein the polymeric layer polymer has a water permeability of greater than  $5000 \text{ [(cm}^3\text{cm)}/(\text{cm}^2\text{sec/Pa})] \times 10^{13}$ .

18. **(Currently Amended)** A packaging material according to claim 14 wherein the polymeric layer polymer comprises one or more of polyvinyl alcohol, cellophane, water-based polyurethanes, polyester, nylon, high nitrile resins, polyethylene-polyvinyl alcohol copolymer, polystyrene, ethyl cellulose, cellulose acetate, cellulose nitrate, aqueous latexes, polyacrylic acid, polystyrene sulfonate, polyamide, polymethacrylate, polyethylene terephthalate, polystyrene, polyethylene and polypropylene or polyacrylonitrile.

19. **(Currently Amended)** A packaging material according to claim 14 wherein the metal-ion sequestering agent comprises ~~are~~ 0.1 to 50.0 % by weight of a the polymer in the polymeric layer.

20. **(Original)** A packaging material according to claim 12 wherein said inorganic nanoparticles have an average particle size of less than 100 nm.

21. **(Original)** A packaging material according to claim 12 wherein said inorganic nanoparticles have an average particle size of less than 50 nm.

22. **(Original)** A packaging material according to claim 12 wherein said inorganic nanoparticles comprise silica oxides, alumina oxides, boehmites, titanium oxides, zinc oxides, tin oxides, zirconium oxides, yttrium oxides, hafnium oxides, clays, and alumina silicates.

23. **(Original)** A packaging material according to claim 14 wherein said metal-ion sequestrant comprises an alpha amino carboxylate, a hydroxamate, or a catechol functional group.

24. **(Canceled)**

25. **(Canceled)**

26. **(Original)** A packaging material according to claim 12 wherein said inorganic nanoparticles have a specific surface area of greater than 100 m<sup>2</sup>/g.

27. **(Currently Amended)** A packaging material according to claim 14 further comprising a barrier layer wherein the polymeric layer is between the surface of the packaging material article and the barrier layer and wherein the barrier layer does not contain the derivatized nanoparticles.

28. **(Original)** A packaging material according to claim 27 wherein the barrier layer is permeable to water.

29. **(Original)** A packaging material according to claim 27 wherein the barrier layer has a water permeability of greater than 1000  $[(\text{cm}^3\text{cm})/(\text{cm}^2\text{sec/Pa})] \times 10^{13}$ .

30. **(Original)** A packaging material according to claim 27 wherein the barrier layer has a thickness in the range of 0.1 microns to 10.0 microns.

31. **(Original)** A packaging material according to claim 27 wherein the barrier layer comprises one or more of polyvinyl alcohol, cellophane, water-based polyurethanes, polyester, nylon, high nitrile resins, polyethylene-polyvinyl alcohol copolymer, polystyrene, ethyl cellulose, cellulose acetate, cellulose nitrate, aqueous latexes, polyacrylic acid, polystyrene sulfonate, polyamide, polymethacrylate, polyethylene terephthalate, polystyrene, polyethylene and polypropylene or polyacrylonitrile.

32. **(Original)** A packaging material according to claim 27 wherein microbes cannot pass or diffuse through the barrier layer.

33. **(Original)** A packaging material according to claim 1 wherein said sequestering agent is integrally formed as a part of said material.

34. **(Original)** A packaging material according to claim 33 wherein said packaging material is formed as rigid or semi-rigid structure for holding of said foodstuff.

35. **(Original)** A packaging material according to claim 34 wherein said rigid or semi-rigid structure is substantially in the shape of tray having a substantially continuous outer raised periphery.

36. **(Original)** A packaging material according to claim 1 wherein said packaging material is in the form of flexible sheet that can be wrapped about said foodstuff.

37. - 52. **(Canceled)**

53. **(New)** A packaging material used for wrapping foodstuffs and for inhibiting the growth of micro-organisms in foodstuffs, said packaging material having a metal-ion sequestering agent capable of removing designated metals ions from the surfaces of said foodstuffs and from liquid extrudates of foodstuffs, wherein said sequestering agent comprises derivatized nanoparticles comprising inorganic nanoparticles having an attached metal-ion sequestrant, wherein said inorganic nanoparticles have an average particle size of less than 200 nm and the derivatized nanoparticles have a stability constant greater than  $10^{10}$  with iron (III), and wherein said metal-ion sequestrant is attached to the nanoparticle by reacting the nanoparticle with a silicon alkoxide intermediate of the sequestrant having the general formula:

$\text{Si}(\text{OR})_{4-x} \text{R}'_x$ ;

wherein x is an integer from 1 to 3;

R is an alkyl group; and

R' is an organic group containing an alpha amino carboxylate, a hydroxamate, or a catechol.

54. **(New)** A packaging material according to claim 53 wherein said sequestering agent is immobilized on a support structure.

55. **(New)** A packaging material according to claim 53 wherein said packaging material is made of glass, metal, plastic or paper.

56. **(New)** A packaging material according to claim 53 wherein said packaging material comprises a plurality of layers having an outer layer having sequestering agent.

57. **(New)** A packaging material according to claim 53 wherein said packaging material comprises a plurality of layers comprising an outer barrier layer for contact with said foodstuff and an inner layer having said sequestering agent, said inner layer having a first side adjacent said barrier layer, said barrier layer allowing liquid to pass through to said inner layer.

58. **(New)** A packaging material according to claim 57 wherein a second outer layer is provided on a second side of said inner layer.

59. **(New)** A packaging material according to claim 58 wherein said second outer layer is a second barrier layer that also allows liquid to pass through to said inner layer.

60. **(New)** A packaging material according to claim 53 wherein said sequestering agent is immobilized on the support structure and has a high-affinity for biologically important metal-ions Mn, Zn, Cu and Fe.

61. **(New)** A packaging material according to claim 53 wherein said sequestering agent is immobilized on the support structure and has a high-selectivity for biologically important metal-ions Mn, Zn, Cu and Fe.

62. **(New)** A packaging material according to claim 61 wherein said sequestering agent is immobilized on the support structure and has a stability constant greater than  $10^{20}$  with iron (III).

63. **(New)** A packaging material according to claim 61 wherein said sequestering agent is immobilized on the support structure and has a stability constant greater than  $10^{30}$  with iron (III).

64. **(New)** A packaging material according to claim 61 wherein said sequestering agent comprises derivatized nanoparticles comprising inorganic nanoparticles having an attached metal-ion sequestrant, wherein said inorganic nanoparticles have an average particle size of less than 200 nm and the derivatized nanoparticles have a stability constant greater than  $10^{20}$  with iron (III).

65. **(New)** A packaging material according to claim 53 further comprising a support comprising a polymeric layer containing said metal-ion sequestering agent.

66. **(New)** A packaging material according to claim 65 wherein the polymeric layer is permeable to water.

67. **(New)** A packaging material according to claim 65 wherein the polymeric layer has a water permeability of greater than 1000  $[(\text{cm}^3\text{cm})/(\text{cm}^2\text{sec/Pa})] \times 10^{13}$ .

68. **(New)** A packaging material according to claim 65 wherein the polymeric layer has a water permeability of greater than 5000  $[(\text{cm}^3\text{cm})/(\text{cm}^2\text{sec/Pa})] \times 10^{13}$ .